

REMARKS

Submitted herewith is a certified priority document of corresponding Japanese Patent Application No. 2000-358471, filed November 24, 2000 for the purpose of claiming foreign priority under 35 U.S.C. § 119. An indication that this document has been safely received would be appreciated.

SPECIFICATION AND ABSTRACT

The specification has been amended to correct certain inadvertent typographical errors and to otherwise improve its form. The abstract has also been amended so that it now conforms to the requirements for an abstract.

No new matter has been added by the amendments to the specification and abstract.

CLAIM OBJECTIONS AND REJECTIONS UNDER 35 U.S.C. § 112

Claims 1-4 have all been amended to satisfy the various objections under 35 U.S.C. § 112 set forth by the Examiner in numbered paragraphs 4-8 on pages 2 and 3 of the Action.

With respect to claim 4 the Examiner stated that it appears a method step is missing and that there is no step recited which explains how a sample is caught on the tip of the sampling needle and it is unclear if "a sample caught on

the tip" is the same as the "a sample" attached on the surface. Claim 4 has been amended so that it is now clear that the sample caught on the tip is the same as the sample attached on the surface.

Moreover, claim 4 has been amended to indicate the sample is picked up by the needle. The procedures for catching a sample with a needle are described in detail in the specification at page 22, lines 10-26, particularly in lines 22-26. It is submitted, however, that the various procedures described in the specification, such as by the action of static electricity, by thrusting the tip into the sample or by scooping or ladling the sample with the tip the needle are well known to a person skilled in the art. Accordingly, it is submitted that claim 4, as now amended, sufficiently defines the method.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by Fowler et al U.S. Patent No. 5,574,594 for the reasons set forth on pages 4-6 of the Action.

Claims 1 and 4 were rejected under 35 U.S.C. § 102(b) as being anticipated by Syska et al U.S. Patent No. 6,159,199 for the reasons set forth on pages 6-8.

Claims 1 and 4 were rejected under 35 U.S.C. § 102(e) as being anticipated by Miyoshi U.S. Patent No. 6,411,433 for the reasons set forth on pages 8-10.

For the reasons set forth hereafter, it is submitted that claims 1-4, as amended, are patentable.

PATENTABILITY OF THE CLAIMS

The present invention relates to a sampling apparatus and, as defined in amended claim 1, comprises a frame fixed to an object lens of an optical microscope, a moving member supported by the fixed frame so as to be reciprocatably movable between a sampling position and a waiting position, a member for holding the moving member at the waiting position, a device for adjusting the position of a sampling needle, means for fixing the sampling needle to the moving member, and means for moving a surface on which a sample is located.

A sampling method is defined in claim 4 and comprises a sample moving step in which a surface on which a sample is attached is moved to a focus position of an object lens of an optical microscope, a needle moving step in which a moving member, which supports a sampling needle, is moved integratedly with the sampling needle from a waiting position where the position of the tip of the sampling needle is spaced

from the focus position of the object lens to a sampling position where the tip of the sampling needle is situated at the focus position of the object lens and a sampling step in which a sample is picked up on the tip of the sampling needle and taken away from a surface on which the sample was located and positioned for further analysis.

As discussed in the specification, at page 30, lines 5 to 13, when the sampling apparatus or sampling method of the present invention is used, a minute sample for microscopic analysis can readily be collected, a simple sampling apparatus can be provided at a low production cost, a sample analysis can be achieved in a simple manner, and the apparatus of the present invention can be used for an ordinary microscope.

The Fowler et al patent relates to an automated microscope slide marking device wherein a sample is not moved during its operation. From this fact and the jigs shown in Fowler et al., it is apparent that marking of a sample is possible. However, collection of a minute sample by the device of Fowler et al. is impossible. On the other hand, the present invention is concerned with an apparatus and a method for collecting a minute sample (page 1, lines 5 to 6 of the specification) for analysis. The apparatus is defined in

claim 1 and the method is defined in claim 4 wherein a sample moving step and a sampling step are specifically recited.

Although the examiner has lengthily discussed the microscope slide marking device of Fowler et al. in paragraph 10 of the rejection, the Examiner's discussion does not show how the Fowler et al device discloses the claimed features of the sampling apparatus or sampling method of the present invention. The specification of Fowler et al. clearly lacks a teaching of a moving member 15 shown in Applicants' Figs. 1B, 9, 10A and B, and 11A and C and reciprocatably movable between a sampling position and a waiting position.

Moreover, member 17 shown in the figures mentioned above and used for holding the moving member 15 is not included in or taught by the Fowler et al patent. Neither are devices 21 and 21 shown in the figures mentioned above and used for adjusting the position of a sampling needle so that the tip of the sampling needle is situated at the focus position of the object lens in a state wherein the moving member is moved to the sampling position, included in or taught by the Fowler et al patent. In addition means 24 shown in the figures mentioned above and used for fixing the sampling needle are not included in or taught by the Fowler et al patent.

It is further noted that in the device of Fowler et al., marker assembly 22 and needle-like tube 58 are secured and are not movable when a slide is marked with a plastic fiber colored with an ink (col. 5, lines 24 to 31, and lines 44 to 47). Another significant difference is that in the Fowler device only a plastic fiber is moved when a slide is marked (col., 4, lines 58 to 61). Further, in the device of Fowler et al., the position of the tip (free end) of the plastic fiber can not precisely be controlled when actuator 26 is energized. In other words, the position of the tip of the plastic fiber is either protruded or retreated back. No intermediate position exists. It is impossible to minutely change the position of the plastic fiber, coping with the position of a sample, in the Fowler's device.

The Examiner has argued at page 6, lines 4 to 11 that the positions of ring adaptor 40 and needle-like tube 58 can be adjusted. However the ring adaptor 40 and the needle-like tube 58 cannot be reciprocatably moved, and the position of the tip of plastic fiber 62 cannot precisely be adjusted at the time of operation. A mechanism for moving the ring adaptor and the needle-like tube is not specifically shown in Fowler et al. On the other hand, in the device of the present invention, moving member 15 is reciprocatably moved and the

position of the tip of sampling needle 23 is precisely adjusted at the time of operation. The function of the apparatus of the present invention is explained in the present specification in detail at page 19, line 19 to page 22, line 9.

Further, in a slide marking device such as that of Fowler, it is unnecessary to precisely adjust the position of the tip of the plastic fiber as long as the tip or tip portion is contacted with the surface of the slide. This is a critical difference from the apparatus of the present invention in which the position of the tip of a sampling needle must be precisely adjusted.

Accordingly, the device of Fowler et al is significantly different from the apparatus of the present invention in not only its object but also the actual structure of the device. Moreover, Fowler et al does not disclose the claimed sampling method of the present invention.

The Syska et al. patent relates to a device for handling instruments used in technical cytological examinations as the Examiner noted. Thus the device of Syska et al. is designed to handle a cell of a living thing. However, the amplitude of vibration of the tips of needles is large in Syska's device, since the needles are supported by extended clamping bars 15.

Accordingly, it would be quite difficult to collect a sample having a size of only several microns using the device of Syska et al.

With respect to the structure of the Syska et al device, the device is used without being attached to an object lens of an optical microscope. On the other hand, in the apparatus of the present invention, a moving member is supported with the frame fixed to the object lens so that the vibration of the sampling needle is almost completely suppressed.

The device of Syska et al essentially comprises at least two needles and thus at least two separate holders for the needles are required. In the sampling apparatus of the present invention, however, only one shaft 11 for supporting one needle 23 (needle holder 21) is used.

As previously noted, the apparatus of the present invention essentially comprises a frame fixed to the object lens of an optical microscope, a moving member supported by the fixed frame so as to be reciprocatably movable between a sampling position and a waiting position, a member for holding the moving member at the waiting position, means for fixing a sampling needle to the moving member, and means for moving the surface on which a sample is located.

These parts (frame, members, and means) are not used, taught or suggested by Syska et al. Thus the device of Syska et al is not only structurally different from the apparatus of the present invention but also Syska et al does not disclose the sampling method of the present invention.

The Miyoshi patent discloses a micromanipulator having a probe which protrudes from probe supporting member 32 connected to rotating hold member 34 (column 3, line 64 to column 4, line 1, and column 8, line 67 to column 9, line 1). In such a device, vibration of the probe is generated at the time of manipulation. Accordingly, in such a device, the additional use of an operation controlling apparatus having a high degree of control becomes necessary.

Further, in the micromanipulator of Miyoshi, the manipulation probe 6 (corresponding to the needle 23 in the apparatus of the present invention) must have a high-stiffness (ABSTRACT; col. 2, lines 24 to 25; claim 1, line 7). On the other hand, in the apparatus of the present invention, high-stiffness is not specifically required of the needle. Moreover, whereas the probe supporting member 32 in Miyoshi is a flat plate (col. 4, line 6), needle 23 in the apparatus of the present invention is supported not with a flat plate but, for example, with a cylindrical member (page 17, lines 3 to 4)

and the cylindrical member is held with shaft 11 (Figs. 1, and 10A to 11C).

The claimed apparatus of the present invention has been previously discussed in detail. Miyoshi does not disclose the claimed apparatus of the present invention.

Miyoshi uses a transfer control device 8. However, the structure of transfer control device 8 is not disclosed in Miyoshi. In other words, the structure of the moving member 15 and the member 17 for holding the moving member as used in the apparatus of the present invention are not described or suggested at all in Miyoshi.

Thus, the apparatus of Miyoshi is completely different from that of the present invention in its structure. Further, Miyoshi is completely silent about any sampling method as claimed by Applicants.

Although the Examiner has discussed in detail the disclosures of the cited Fowler et al, Syska et al and Miyoshi references, most of the discussions are not related at all to the features in the apparatus or method of the present invention as now claimed.

It is submitted that amended claims 1 to 4 satisfy the requirements of 35 U.S.C. § 112, and the apparatus and method for sampling of the present invention as now claimed are not

anticipated by or rendered obvious by the cited references,
taken either alone or in combination with one another.

In view of the foregoing amendments and remarks,
Applicants contend that this application is in condition for
allowance. Accordingly, reconsideration and reexamination are
respectfully requested.

Respectfully submitted,

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